

FACT SHEET FOR NPDES PERMIT WA 0039438

FACILITY NAME: JT MARINE, INC.

PURPOSE of this Fact Sheet

This fact sheet explains and documents the decisions Department of Ecology (Ecology) made in drafting the proposed National Pollutant Discharge Elimination System (NPDES) permit for JT Marine, Inc.

The Environmental Protection Agency (EPA) developed the NPDES permitting program as a tool to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” EPA delegated to Ecology the power and duty to write, issue, and enforce NPDES permits within Washington State. Both state and federal laws require any industrial facility to obtain a permit before discharging waste or chemicals to a water body.

An NPDES permit limits the types and amounts of pollution the Permittee may discharge. Those limits are based either on (1) the pollution control or wastewater treatment technology available to the industry, or on (2) the receiving water’s customary beneficial uses. This fact sheet complies with Section 173-220-060 of the Washington Administrative Code (WAC), which requires Ecology to prepare a draft permit *and accompanying fact sheet* for public evaluation before issuing an NPDES permit.

PUBLIC ROLE in the Permit

Ecology makes the draft permit and fact sheet available for public review and comment at least 30 days before we issue the final permit to the facility operator (WAC 173-220-050). Copies of the fact sheet and draft permit for JT Marine NPDES permit WA0039438 are available for public review and comment from July 11, 2008, until the close of business August 9, 2008. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement**.

Before publishing the draft NPDES permit, JT Marine reviewed it for factual accuracy. Ecology corrected any errors or omissions about the facility’s location, product type or production rate, discharges or receiving water, or its history.

After the public comment period closes, Ecology will summarize substantive comments and our responses to them. Ecology will include our summary and responses to comments to this Fact Sheet as **Appendix C - Response to Comments**, and publish it when we issue the final NPDES permit. The rest of the fact sheet will not be revised, but the full document will become part of the legal history contained in the facility’s permit file.

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I. INTRODUCTION

Table 1 - General Facility Information

Applicant:	Timo Toristoja, President
Facility Name and Address:	JT Marine, Inc. 21718 NE Rodda Rd Battle Ground, WA 98604
Facility Name and Mailing Address	JT Marine, Inc. P.O. Box 35 Battle Ground, WA 98604
Type of Treatment:	Best management practices
SIC Code	3731, Ship Repairing 3732, Boat Repairing
Discharge Location:	Columbia River Latitude: 45° 36' 44" N Longitude: 122° 38' 39" W
Water Body ID Number:	1240014462974

The Federal Clean Water Act (FCWA, 1972, and later amendments in 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One mechanism for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), administered by the federal Environmental Protection Agency (EPA). The EPA authorized the state of Washington to manage the NPDES permit program in our state. Our state legislature accepted the delegation and assigned the power and duty for conducting NPDES permitting and enforcement to Ecology. The legislature defined Ecology's authority and obligations for the wastewater discharge permit program in 90.48 RCW (Revised Code of Washington).

Ecology adopted rules describing how we exercise our authority:

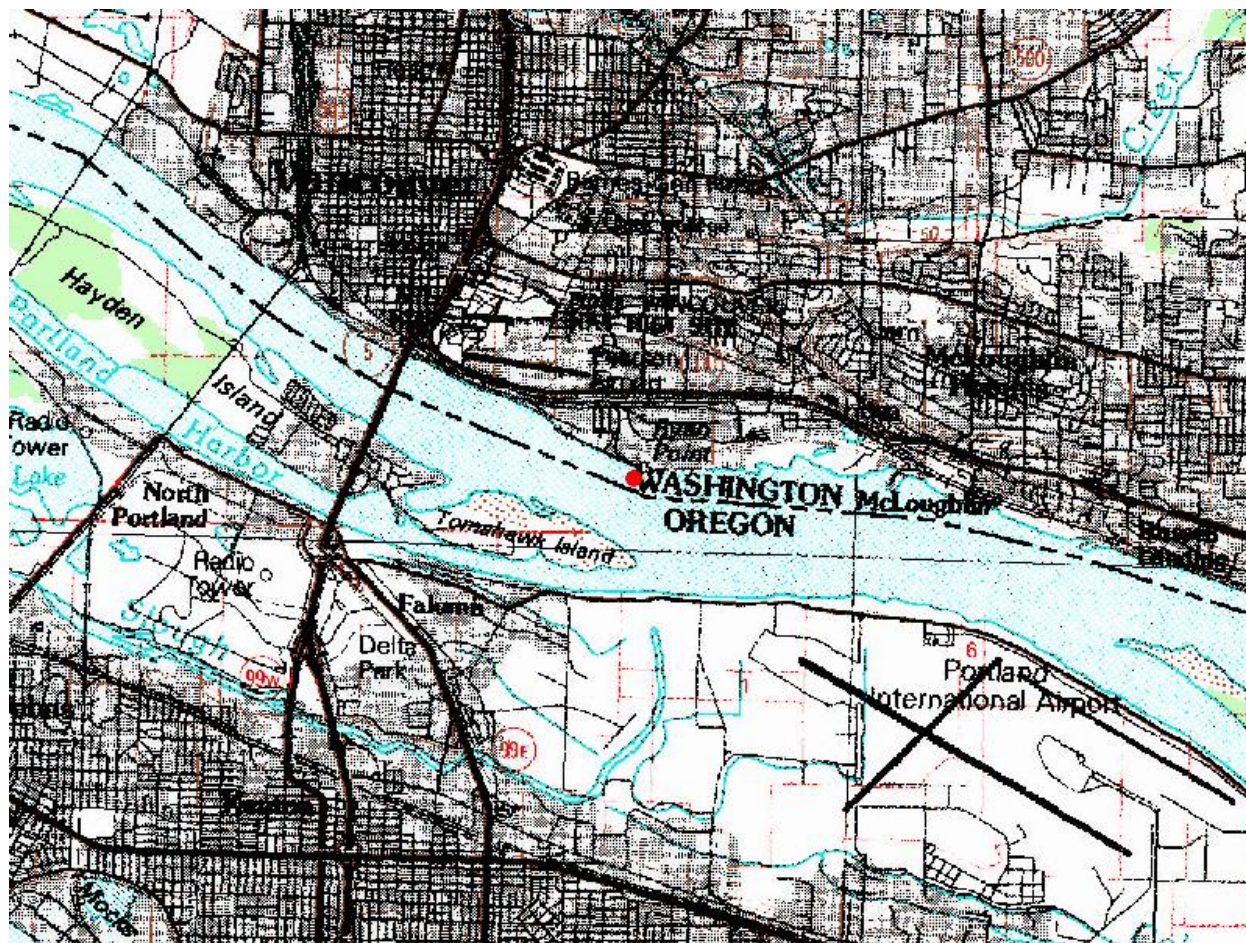
- Procedures Ecology follows for issuing NPDES permits (chapter 173-220 WAC),
- Water quality criteria for surface waters (chapter 173-201A WAC) and for ground waters (chapter 173-200 WAC)
- Sediment management standards (chapter 173-204 WAC).

These rules require any industrial facility operator to obtain an NPDES permit before discharging wastewater to state waters. They also define the basis for limits on each discharge and for other performance requirements imposed by the permit.

Under the NPDES permit program, Ecology must prepare a draft permit and accompanying fact sheet, and make it available for public review. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments on the draft permit, during a period of 30 days (WAC 173-220-050). (See **Appendix A--Public Involvement** for more detail about the Public Notice and Comment procedures). After the Public Comment Period ends, Ecology may

make changes to the draft NPDES permit in response to comment. Ecology will summarize the responses to comments and any changes to the permit in **Appendix C – Response to Comments**.

Figure 1 Facility location.



II. BACKGROUND INFORMATION

A. Facility Description

History

JT Marine proposes to operate 1,200-tonnage drydock and boat maintenance and repair facility on Columbia River in Vancouver, Washington. The drydock location is depicted by a red dot in Figure 1. Ecology has known about the drydock since 2007 and received an acceptable NPDES permit application on May 5, 2008. The facility will not discharge any wastewater and industrial stormwater discharges from the drydock except flood water and non-industrial stormwater. The facility will discharge non-industrial stormwater from the drydock and stationary dock only when they are empty and idle. It will discharge all process wastewater to the city of Vancouver's wastewater system. Also, JT Marine is permitted to bypass stormwater as described in the permit under Special Condition S4.A.2.

Industrial Process

The JT Marine drydock and boat maintenance and repair facility will conduct ship and boat repair and modification (Standard Industrial Classification (SIC) Code No. 3731 for ship and 3732 for boat). The facility consists of an approximately 4,920 square foot lined stationary dock (about 0.11 acres); one drydock approximately 50 feet wide by 200 feet long with an active deck surface about 7,560 square feet in size (about 0.17 acres); and an electric crane (no hydraulics) permanently mounted on the stationary dock. One hundred percent of the facility surface is impervious and the facility has no buildings. The facility has capacity to repair one large vessel at a time in the drydock. JT Marine anticipates that it will repair and modify approximately 15 to 20 tugs and barges with steel or aluminum hulls each year. Eighty-five percent of gross revenues are anticipated from vessels 65 feet or greater in length.

The facility will operate year around. The project includes no upland vessel haul out or work areas on paved uplands on Columbia Business Center property adjacent to the stationary dock. JT Marine will locate the following facilities on the adjacent upland: a portable office with one sewerer restroom; portable toilets (maintained by an outside contractor) for drydock workers; covered solid waste and recycling containers for municipal pickup; one approximately 4,000 gallon storage tank for drydock hydroblast water and stormwater storage prior to pretreatment and discharge to sanitary sewer; and a portable self-contained Aquip™ 50SX (25 gpm) pretreatment system.

Activities conducted at this facility within the drydock will include:

- Pressure washing (hydroblasting using the city water supply) and sand blasting.
- Bottom and top side painting.
- Prop and rudder repair.
- Hull welding and grinding.
- Hull repair and joinery.
- Minor metal fabrication and other activities necessary for minor modifications or maintenance of vessels.
- Engine repair.

Activities conducted on the stationary dock at this facility will include:

- Transfer of supplies and materials for each job into and out of the drydock.
- Occasional minor metal fabrication if space in the drydock is limited.

This facility will not provide the following services:

- De-degreasing or steam cleaning.
- Bilge or ballast water draining.
- Cooling water supply.
- Fueling.
- Sanitary waste pumping or disposal.

The drydock wing-walls contain storage compartments that employees will use for short term storage of all paints, solvents, wastes and other materials, and within which paint mixing and related activities

would take place. These wing-wall compartments will provide roofed cover from stormwater and secondary containment exceeding 110 percent of the stored material volume. The facility will store all materials with constituents listed as hazardous materials in these roofed secondary containment areas. No storage of materials that could contaminate stormwater will occur in the open. Employees will bring materials for each job to the drydock on an as-needed basis, and an offsite contractor will remove waste and surplus materials for each job for recycling or disposal.

The drydock will have a newly refinished and coated deck surface that is easily cleaned. When work on a vessel is complete employees will sweep and pressure wash the drydock. The facility will pretreat washwater prior to discharge to the sanitary sewer. Solids would be removed for offsite disposal. Employees will submerge the drydock to release the vessel and dock the next vessel. This will create a flood water discharge from the drydock. The proposed permit contains best management practices (BMPs) for drydock cleaning prior to submergence.

Recent individual NPDES permits for operations similar to JT Marine have regulated drydock flood water via monitoring for some or all of the following parameters:

- Visible sheen
- Oil and grease (O&G)
- Turbidity.
- Total copper
- Total lead.
- Total zinc.

Said permits set effluent limitations for:

- Oily sheen (no visible).
- Oil and grease (5 mg/L).
- Turbidity (5 NTU over background).

Under circumstances when the drydock and stationary dock are idle after cleaning and submergence to offload a vessel with no subsequent work, the proposed permit allows stormwater from the decks to directly discharge to the Columbia River. This discharge could only occur after the facility fully implements BMPs for cleaning the drydock prior to submergence for vessel on-loading or off-loading, and only when the drydock and stationary dock are empty and idle.

Wastewater Treatment

The facility will pretreat all hydroblast water, washwater and industrial stormwater, if required by the city of Vancouver waste discharge permit, prior to discharge to the City sewer system. It will only directly discharge the drydock flood water and non-industrial stormwater.

Residual Solids

JT Marine will dispose of the residual solids according to the City waste discharge permit.

Discharge Outfall

The facility will discharge flood water on both sides of the drydock to the Columbia River.

B. Permit Status

This is a new, previously unpermitted facility.

JT Marine submitted an application for permit issuance on May 5, 2008. Ecology accepted it as complete on May 23, 2008.

C. Wastewater Characterization

The application provided data for oil and grease and turbidity for drydock flood water reported by Foss Maritime an industrial shipyard located in Seattle under Permit WA 0031054 summarized from discharge monitoring reports (DMRs) submitted between April 1997 and January 2005 with the results in Table 2.

Table 2: Wastewater Characterization

Parameter	Average Concentration	Maximum Concentration
Oil and Grease (O&G)	All values below detection	All values below detection
Turbidity, Drydock 1	1.1	5.6
Turbidity, Drydock 2	1.2	9.8

D. SEPA Compliance

To meet the intent of SEPA, an existing, unpermitted discharge must undergo SEPA review during the permitting process. The facility filed a SEPA checklist with city of Vancouver and the city of Vancouver issued an optional SEPA determination of non-significance (DNS) for the project on July 14, 2008.

III. PROPOSED PERMIT CONDITIONS

Federal and state regulations require that effluent limits in an NPDES permit must be either technology- or water quality-based.

- Technology-based limits are based upon the treatment methods available to treat specific pollutants. Technology-based limits are set by the EPA and published as a regulation, or Ecology develops the limit on a case-by-case basis (40 CFR 125.3, and chapter 173-220 WAC).
- Water quality-based limits are calculated so that the effluent will comply with the Surface Water Quality Standards (chapter 173-201A WAC), Ground Water Standards (chapter 173-200 WAC), Sediment Quality Standards (chapter 173-204 WAC) or the National Toxics Rule (40 CFR 131.36).
- Ecology must apply the most stringent of these limits to each parameter of concern. These limits are described below.

The limits in this permit reflect information received in the application. Ecology evaluated the permit application and determined the limits needed to comply with the rules adopted by the state of Washington. Ecology does not develop effluent limits for all reported pollutants. Some pollutants are not

treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation.

Nor does Ecology usually develop permit limits for pollutants that were not reported in the permit application but that may be present in the discharge. The permit does not authorize discharge of the non-reported pollutants. During the five-year permit term, the facility's effluent discharge conditions may change from those conditions reported in the permit application. The facility must notify Ecology, as described in 40 CFR 122.42(a), if significant changes occur in any constituent. Industries may be in violation of their permit until the permit is modified to reflect additional discharge of pollutants.

A. Technology-Based Effluent Limits

EPA has not promulgated effluent guidelines for the shipyard industry yet. However, the draft *Development Document for Proposed Effluent Limitations Guidelines for Shipbuilding and Repair* (EPA 440/1-79/76b) identifies the following pollutant parameters as those which discharge or have the potential to be discharged to a receiving water from shipyards:

- Conventional pollutants: suspended and settleable solids, oil and grease, pH
- Priority pollutant metals: chromium, copper, lead, and zinc
- Other metals: tin

The following technology-based effluent limitations are established for JT Marine:

Pressure Wash Wastewater—Collection, treatment and hauling, recycle or discharge to the sewerage system of hydroblast wastewater is available technology and is used at most shipyards. Even most boatyards collect and recycle hull washwater. Hydroblast wastewater collection, treatment and recycle or discharge to a municipal sewerage system is determined to be consistent with technology-based requirements cited in chapter 173-220 WAC as all known, available, and reasonable methods of treatment (AKART). JT Marine plans to pretreat its pressure wash wastewater (hydroblast wastewater) and discharge it to the sanitary sewer.

The proposed permit requires the facility to continue to follow and improve, as necessary, best management practices (BMPs). It will clean the drydock to remove spent blasting abrasives and other solid wastes, including paint chips, scrap metal, wood, plastic, paper, and welding rods. Prior to undocking, employees will return the drydock to a clean condition using dry cleanup methods (for example, brooms, vacuums..., etc.). As a final cleanup step staff may flush the marine way and screw lift drydock using the minimum amount of water necessary to return it to a clean condition as long as the washwater is not directly discharged to Columbia River. The proposed permit requires a change no bigger than 5 NTUs in turbidity between the drydock floodwater and the ambient water. In addition the discharge must not have a visible sheen. The facility must take photographs and maintain them in a logbook to demonstrate the condition of the drydock floor prior to launching a vessel and during sample collection.

JT Marine must also achieve concentrations of oil and grease in drydock floodwaters of less than 5 mg/L. This level of control has also been achieved for drydock floodwaters at all known and permitted Washington State shipyard facilities. Based on this achieved level of control and best professional judgment, Ecology has determined an oil and grease effluent limitation of 5 mg/L is AKART for the floodwater discharges from JT Marine's drydock.

Recycling of solvents on-site or off-site disposal is consistent with AKART requirements. Zero discharge from maintenance shops and all outdoor repair activities is determined to be AKART.

Discharge of bilge and ballast water to the city of Vancouver Sanitary Sewerage System subsequent to characterization and approval or hauling off-site for treatment is determined to be AKART.

B. Surface Water Quality-Based Effluent Limits

The Washington State Surface Water Quality Standards (chapter 173-201A WAC) were designed to protect existing water quality and preserve the beneficial uses of Washington's surface waters. Waste discharge permits must include conditions that ensure the discharge will meet established surface water quality standards (WAC 173-201A-510). Water quality-based effluent limits may be based on an individual waste load allocation or on a waste load allocation developed during a basin wide total maximum daily loading study (TMDL).

Numerical Criteria for the Protection of Aquatic Life and Recreation

Numerical water quality criteria are published in the Water Quality Standards for Surface Waters (chapter 173-201A WAC). They specify the levels of pollutants allowed in receiving water to protect aquatic life and recreation in and on the water. Ecology uses numerical criteria along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limits, the discharge must meet the water quality-based limits.

Numerical Criteria for the Protection of Human Health

The U.S. EPA has published 91 numeric water quality criteria for the protection of human health that are applicable to dischargers in Washington State (40 CFR 131.36). These criteria are designed to protect humans from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters. The Water Quality Standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative Criteria

Narrative water quality criteria (e.g., WAC 173-201A-240(1); 2006) limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge to levels below those which have the potential to:

- Adversely affect designated water uses.
- Cause acute or chronic toxicity to biota.
- Impair aesthetic values.
- Adversely affect human health.

Narrative criteria protect the specific designated uses of all fresh waters (WAC 173-201A-200.; 2006) and of all marine waters (WAC 173-201A-210.; 2006) in the state of Washington.

Antidegradation

The purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330; 2006) is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of surface water.
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART).
- Apply three Tiers of protection (described below) for surface waters of the state.

Tier I ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollutions. Tier II ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities. Tier III prevents the degradation of waters formally listed as "outstanding resource waters," and applies to all sources of pollution.

This facility must meet Tier I requirements.

- Existing and designated uses must be maintained and protected. No degradation may be allowed that would interfere with, or become injurious to, existing or designated uses, except as provided for in this chapter.

Ecology's analysis described in this section of the fact sheet demonstrates that the existing and designated uses of the receiving water will be protected under the conditions of the proposed permit.

A facility must prepare a Tier II analysis when all three of the following conditions are met:

- The facility is planning a new or expanded action.
- Ecology regulates or authorizes the action.
- The action has the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone.

As long as the facility meets its permit conditions the only parameter Ecology needs to consider is turbidity. The proposed permit limits the facility to a discharge of 5 NTUs. Information from a similar facility shows an average turbidity value of approximately 1 NTU. If the facility does not exceed its permit limits it should not cause a measurable increase in turbidity (an increase greater than 0.5 NTU) in the receiving water. Because the facility will not cause measurable degradation to existing water quality in the receiving water under the conditions of the proposed permit; it does not have to prepare a Tier II analysis.

Mixing Zones

A mixing zone is the defined area in the receiving water surrounding the discharge port(s), where wastewater mixes with receiving water. Within mixing zones the pollutant concentrations may exceed water quality numeric criteria, so long as the diluting wastewater doesn't interfere with designated uses of the receiving water body (e.g., recreation, water supply, and aquatic life and wildlife habitat, etc.) The pollutant concentrations outside of the mixing zones must meet water quality numeric criteria.

State and federal rules allow mixing zones because the concentrations and effects of most pollutants diminish rapidly after discharge, due to dilution. Ecology defines mixing zone sizes to limit the amount of time any exposure to the end-of-pipe discharge could harm water quality, plants, or fish.

The state's water quality standards allow Ecology to authorize mixing zones for the facility's permitted wastewater discharges only if those discharges already receive all known, available, and reasonable methods of prevention, control and treatment (AKART). Mixing zones typically require compliance with water quality criteria within 200 to 300 feet from the point of discharge; and use no more than 25 percent of the available width of the water body for dilution. We use modeling to estimate the amount of mixing within the mixing zone. Through modeling we determine the potential for violating the water quality standards at the edge of the mixing zone and derive any necessary effluent limits. Steady-state models are the most frequently used tools for conducting mixing zone analyses. Ecology chooses values for each effluent and for receiving water variables that correspond to the time period when the most critical condition is likely to occur (see Ecology's Permit Writer's Manual). Each critical condition parameter (by itself) has a low probability of occurrence and the resulting dilution factor is conservative. The term "reasonable worst-case" applies to these values.

The mixing zone analysis produces a numerical value called a dilution factor (DF). A dilution factor represents the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. For example, a dilution factor of 10 means the effluent comprises 10 percent by volume and the receiving water comprises 90 percent of the total volume at the boundary of the mixing zone. We use dilution factors with the water quality criteria to calculate reasonable potentials and effluent limits. Water quality standards include both aquatic life-based criteria and human health-based criteria. The former are applied at both the acute and chronic mixing zone boundaries; the latter are applied only at the chronic boundary. The concentration of pollutants at the boundaries of any of these mixing zones may not exceed the numerical criteria for that zone.

Each aquatic life **acute** criterion is based on the assumption that organisms are not exposed to that concentration for more than one-hour and more often than one exposure in three years. Each aquatic life **chronic** criterion is based on the assumption that organisms are not exposed to that concentration for more than four consecutive days and more often than once in three years.

The two types of human health-based water quality criteria distinguish between those pollutants linked to non-cancer effects (non-carcinogenic) and those linked to cancer effects (carcinogenic). The human health-based water quality criteria incorporate several exposure and risk assumptions. These assumptions include:

- A 70-year lifetime of daily exposures.
- An ingestion rate for fish or shellfish measured in kg/day.
- An ingestion rate of two liters/day for drinking water
- A one-in-one-million cancer risk for carcinogenic chemicals.

C. Description of the Receiving Water

The facility discharges to Columbia River, fresh a waterbody. Other nearby point source outfalls include the city of Vancouver municipal wastewater treatment plant, Vancouver Ice and Fuel, Pacific Coast Shredding, Great Western Malting, NuStar Energy, Clark Public Utilities, River Road Generating Plant, Tidewater Vessel Repair and sources on Oregon's site. Significant nearby non-point sources of pollutants

include municipal and industrial stormwater discharges from the city of Vancouver and the city of Portland.

Ambient background data was not available for this discharge therefore the proposed permit requires the facility to collect data for several parameters of concern.

D. Designated Uses and Surface Water Quality Criteria

Applicable designated uses and surface water quality criteria are defined in chapter 173-201A WAC. In addition, the U.S. EPA set human health criteria for toxic pollutants (40 CFR 131.36). Criteria applicable to this facility's discharge are summarized below in Table 5.

- Aquatic Life Uses are designated based on the presence of, or the intent to provide protection for, the key uses. All indigenous fish and non-fish aquatic species must be protected in waters of the state in addition to the key species. The Aquatic Life Uses for this receiving water are identified below.

Table 5 Aquatic Life Uses & Associated Criteria

Salmonid Spawning, Rearing, And Migration	
Temperature Criteria – Highest 1-DMAX	20°C
Dissolved Oxygen Criteria – Lowest 1 Day Minimum	8.0 mg/L
Turbidity Criteria	<ul style="list-style-type: none">• 5 NTU over background when the background is 50 NTU or less; or• A 10 percent increase in turbidity when the background turbidity is more than 50 NTU
Total Dissolved Gas Criteria	Total dissolved gas shall not exceed 110 percent of saturation at any point of sample collection
pH Criteria	pH shall be within the range of 6.5 to 8.5 with a human-caused variation within the above range of less than 0.5 units

- The recreational uses are extraordinary primary contact recreation, primary contact recreation, and secondary contact recreation. The recreational uses for this receiving water are identified below.

Table 6 Recreational Uses & Associated Criteria

Recreational use	Criteria
Primary Contact Recreation	Fecal coliform organism levels must not exceed a geometric mean value of 100 colonies /100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 200 colonies /100 mL

- The water supply uses are domestic, agricultural, industrial, and stock watering.

- The miscellaneous fresh water uses are wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics.

E. Evaluation of Surface Water Quality -Based Effluent Limits for Numeric Criteria

Pollutant concentrations in the proposed discharge do not exceed water quality criteria therefore Ecology does not authorize a mixing zone in accordance with the geometric configuration, flow restriction, and other restrictions imposed on mixing zones described in chapter 173-201A WAC.

No Visible Sheen—WAC 173-201A-030(5)(viii) requires that aesthetic values not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the sense of sight, smell, touch, or taste. Ecology established the “no visible sheen” and 5 mg/L oil & grease effluent limits for drydock floodwater to protect this water quality criteria.

Ecology determined no impact of immediate oxygen deficiency, temperature, pH, fecal coliform, chlorine, ammonia, nutrients and other toxics. The derivation of surface water quality-based limits for said pollutants is not necessary at this time.

Turbidity--The permit requires turbidity monitoring to assess compliance with the water quality criteria for turbidity (see Table 5). Monitoring turbidity of both, effluent and receiving water, is required to assess compliance with the turbidity criteria.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require Ecology to place limits in NPDES permits on toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. Ecology does not exempt facilities with technology-based effluent limits from meeting the surface water quality standards.

The following toxic pollutants are present in the discharge from similar facilities: copper, lead and zinc. No valid effluent or ambient background data was available for copper, lead and zinc. The facility will monitor effluent (floodwater) and receiving surface water for said toxic pollutants. Based on the data Ecology will make a determination if it should impose permit limits for copper, lead and/or zinc.

Water quality criteria for most metals published in chapter 173-201A WAC are based on the dissolved fraction of the metal (see footnotes to table WAC 173-201A-240(3); 2006).

JT Marine may provide data to clearly demonstrate seasonal partitioning of the dissolved metal in the ambient water in relation to an effluent discharge. Ecology may adjust metals criteria on a site-specific basis when data clearly demonstrates the seasonal partitioning in the ambient water in relation to an effluent discharge.

Ecology may also adjust metals criteria using the water effects ratio approach established by the EPA, as generally guided by the procedures in U.S.EPA Water Quality Standards Handbook, (December 1983, as supplemented or replaced).

F. Whole Effluent Toxicity

The water quality standards for surface waters forbid discharge of effluent that causes toxic effects in the receiving waters. Many toxic pollutants cannot be measured by commonly available detection methods. However, laboratory tests can measure toxicity directly by exposing living organisms to the wastewater and measuring their responses. These tests measure the aggregate toxicity of the whole effluent, so this

approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Many shipyards in the Puget Sound area have conducted effluent characterization for acute and chronic toxicity on drydock floodwater, and have not detected toxicity. If the facility makes process or material changes which, in Ecology's opinion, results in an increased potential for effluent toxicity, then Ecology may require effluent characterization in a regulatory order, by permit modification, or in the permit renewal. Toxicity is assumed to have increased if WET testing conducted for submission with a permit application fails to meet the performance standards in WAC 173-205-020, "whole effluent toxicity performance standard." The facility may demonstrate to Ecology that changes have not increased effluent toxicity by performing additional WET testing after the time the process or material changes have been made.

Using the screening criteria in chapter 173-205-040 WAC, Ecology determined that toxic effects caused by unidentified pollutants in the effluent are unlikely. Therefore, this permit does not require WET testing. Ecology may require WET testing in the future, if we receive information indicating that toxicity may be present in this effluent.

G. Human Health

Washington's water quality standards include 91 numeric human health-based criteria that Ecology must consider when writing NPDES permits. These criteria were established in 1992 by the U.S. EPA in its National Toxics Rule (40 CFR 131.36). The National Toxics Rule allows states to use mixing zones to evaluate whether discharges comply with human health criteria.

Ecology has determined that the facility's discharge does not contain chemicals of concern to human health based on existing data. The discharge will be reevaluated for impacts to human health at the next permit reissuance.

H. Sediment Quality

The aquatic sediment standards (chapter 173-204 WAC) protect aquatic biota and human health. Under these standards Ecology may require a facility to evaluate the potential for its discharge to cause a violation of sediment standards (WAC 173-204-400).

Ecology determined that this discharge has potential to impact the sediment quality. JT Marine is required to characterize sediment quality in the vicinity of the discharge location before beginning dry dock operations. This information will provide baseline data for comparison with future sediment monitoring.

Frequently Asked Questions for Sediment Management Standards

Why do we need Sediment Management Standards?

When managing the environment, our government has often partitioned the natural world into different compartments such as air, land, water and sediment. In reality, these compartments are connected and contaminants move easily between them. Discharges of contaminants into the water often accumulate in the sediment, especially for contaminants that are not very soluble. The aquatic ecosystem is dependent on clean water and clean sediment to maintain healthy and diverse populations. Sediment standards are needed to protect the aquatic ecosystem, especially the animals that live in the sediment or depend on

sediment-dwelling organisms as a food source. Sediment standards are also needed to protect people who eat fish and shellfish from our state's waters.

What are the Sediment Management Standards? What are they used for?

Sediment Management Standards (SMS) for the state of Washington (Chapter 173-204 WAC) were developed to reduce and ultimately eliminate adverse effects on biological resources and threats to human health from surface sediment contamination. The Sediment Management Standards are used to:

- Set standards for sediment quality (there are both numeric and narrative standards);
- Apply the standards to reduce pollutant discharges; and
- Provide a decision process for the cleanup of contaminated sediment sites.

The SMS contains only narrative standards for sediment in freshwater and brackish water areas. Numeric criteria are developed on a site specific basis to meet the narrative standards in the SMS.

For sediment in marine environments, there are numeric criteria for 47 chemicals or chemical groups and narrative criteria for chemicals not on the list. Some SMS criteria are based on dry weight, while others are normalized with the organic carbon content of the sediment. There are also confirmatory biological effects criteria related to acute and chronic effects. These effects are determined by laboratory toxicity tests or benthic abundance tests as compared to reference sediment sites. Both chemical concentrations and biological effects tests are used to evaluate sediment standards, but the results of the biological effects tests can override the chemical concentration results.

The SMS contains two different levels of criteria for Puget Sound sediment.

- The **Sediment Quality Standards**, also known as **SQS**, correspond to sediment quality that will result in no adverse affects to biological resources or significant risk to human health. The SQS serve as the cleanup objective for all cleanup actions.
- The **Cleanup Screening Levels**, also known as **CSL**, Minimum Cleanup Levels (MCUL), or Maximum Chemical Criteria for Sediment Impact Zones (SIZmax), correspond to sediment quality that may result in minor adverse effects. The different names correspond to how the criteria are used in three different situations, but the criteria are the same.

The **SQS** (WAC 173-204-320) and **CSL** (WAC 173-204-520) have numeric criteria for chemical concentrations of 47 chemicals and chemical groups and narrative criteria for other chemicals. If the sediment exceeds the chemical concentrations listed in Table 1, or the practical quantitation limit is above the SQS criteria, biological effects tests are needed to confirm whether or not the sediment are causing toxicity to aquatic life. Other types of evaluation or confirmatory testing may be needed if there is a potential risk to human health.

The SMS allow for Sediment Impact Zones (**SIZ**) to be established via discharge permits or other administrative actions (WAC 173-204-415). There are a number of requirements for Sediment Impact zones which include but are not limited to:

- The discharge receives all known, available and reasonable prevention, control and treatment.
- The sediment quality inside the SIZ does not exceed the minor effects standards (**SIZmax**).
- The discharger's activity is in the public interest.

- The SIZ area boundaries are the minimum practicable surface area.

The SMS describe a decision making process for managing contaminated sediment sites in Puget Sound (WAC 173-204-500). The procedures include screening, assessing and ranking contaminated sites, conducting site cleanup studies, selecting site specific cleanup standards, and site specific cleanup actions. Sediment cleanup standards should be as close as practicable to the **SQS** standards, but may also consider cost and technical feasibility and net environmental effects. The upper limit of the site specific cleanup standards are the Minimum Cleanup Levels (**MCUL** or **CSL**). Ecology may authorize a Sediment Recovery Zone with monitoring for a specific amount of time at sites where a cleanup action is not practicable.

What is the authority for the Sediment Management Standards?

The SMS adopted in 1995 are described in WAC Chapter 173-204. This chapter is promulgated under the authority of:

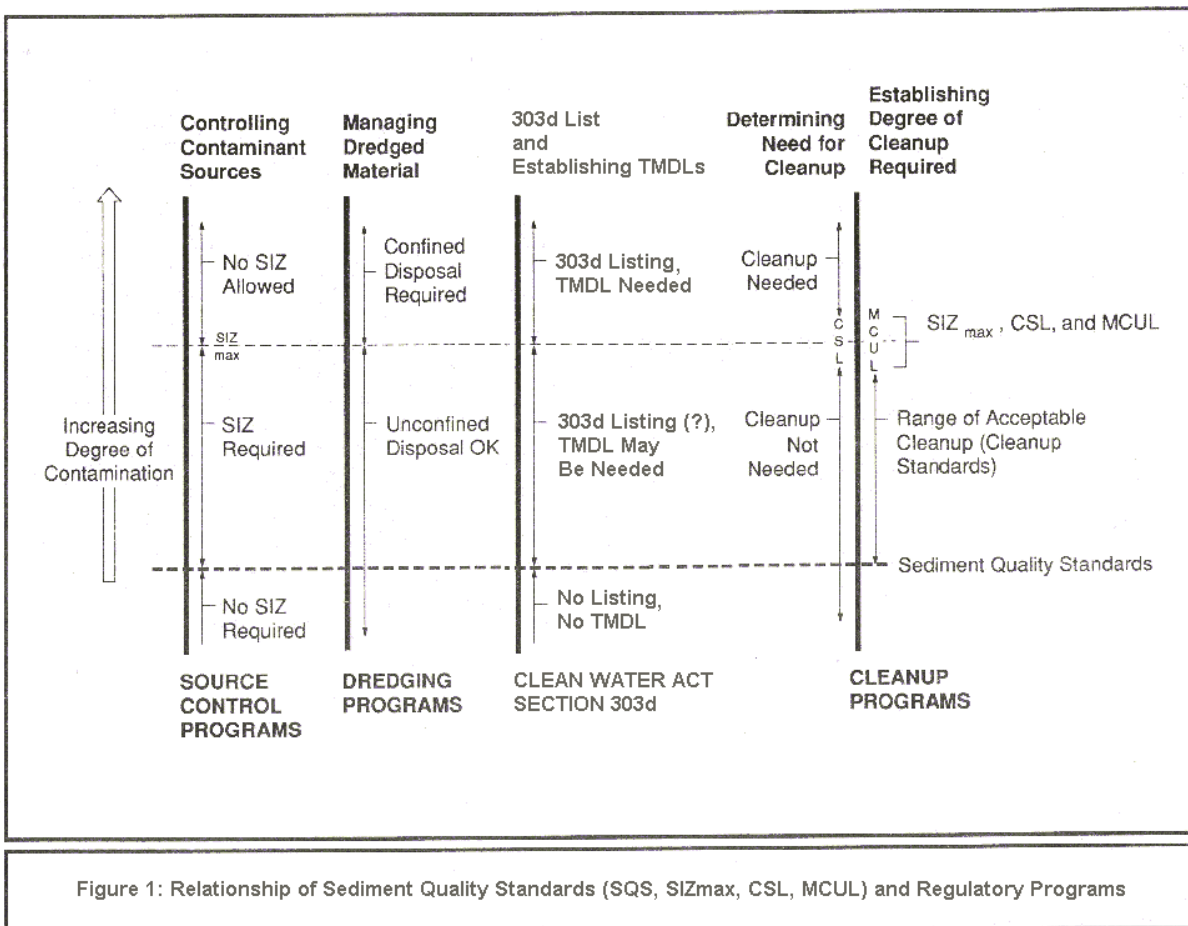
- Chapter 90.48 RCW, the Water Pollution Control Act
- Chapter 70.105D RCW, the Model Toxics Control Act
- Chapter 90.52 RCW, the Pollution Disclosure Act of 1971
- Chapter 90.54 RCW, the Water Resources Act of 1971
- Chapter 43.21C RCW, the state Environmental Policy Act

What kind of sediment tests are used to evaluate Sediment Management Standards?

Testing sediment to evaluate SMS is described in detail in two documents: the Sediment Management Standards WAC 173-204, and the Sediment Sampling and Analysis Plan Appendix. The objectives of the sediment investigation will determine the number and type of samples and analyses needed. A typical screening sediment investigation might include multiple sediment samples of the top 10 centimeters of sediment. These samples would be analyzed for the 47 SMS chemicals or chemical groups as well as conventional analyses. If there is reason to suspect toxicity (practical quantitation levels or concentrations that exceed SQS criteria, high ammonia or sulfides), confirmatory biological effects tests would be performed to determine whether the sediment was causing toxicity.

How do Sediment Management Standards relate to Ecology programs?

As mentioned in the previous section, SMS are used for source control of pollutants and describes procedures for establishing cleanup levels at contaminated sites. The numeric criteria in the SMS are used for determining whether water bodies are impaired due to sediment contamination and need to be placed on the 303d list of impaired water bodies. The SMS criteria parallel those developed for regulating dredged material under the Dredged Material Management Program (DMMP). The figure below shows how SMS standards are used in these different regulatory programs.



References

- Ecology 1995. *Sediment Management Standards*. Chapter 173-204 WAC. Amended December 1995. http://www.ecy.wa.gov/programs/tcp/smu/sed_standards.htm
- Ecology 2003. *Sediment Sampling and Analysis Plan Appendix: Guidance on the Development of Sediment Sampling and Analysis Plans Meeting the Requirements of the Sediment Management Standards (Chapter 173-204 WAC)*. Ecology Publication No. 03-09-043. Revised April 2003. <http://www.ecy.wa.gov/biblio/0309043.html>

Abbreviations and Definitions

CSL – Cleanup Screening Levels- numeric and narrative criteria for chemical and biological effects tests that correspond to an upper bound of sediment quality that will result in minor adverse effects to biological resources or no significant risk to human health.

MCUL – Minimum Cleanup Levels – Numeric criteria are the same as CSL, but are used in the process of establishing minimum cleanup levels at sediment cleanup sites.

Reference sediment sites - The SMS mandates that reference areas (i.e. relatively uncontaminated areas) be sampled to provide data suitable for comparison with data on potentially contaminated sediments. A guidance document on performance standards for reference areas is available for Puget Sound. Samish Bay, Holmes Harbor and Carr Inlet were selected as suitable reference areas based on location and available data. Ecology Publication 06-09-096. <http://www.ecy.wa.gov/biblio/0609096.html>

SAPA – Sediment Sampling and Analysis Plan Appendix – Guidance document for developing sediment sampling and analysis plans that meet the requirements of the Sediment Management Standards. Ecology Publication No. 03-09-043. <http://www.ecy.wa.gov/biblio/0309043.html>

SIZ – Sediment Impact Zone – An area near a discharge that is authorized to exceed the sediment quality standards (SQS). The sediment quality dilution zone is allowed pursuant to RCW 90.48, the Water Pollution Control Act. The SIZ must meet a number of conditions which are described in the SMS (WAC 173-204-415).

SIZmax – Maximum levels for Sediment Impact Zones - Numeric criteria are the same as CSL, but are used in the process of establishing maximum levels allowed in Sediment Impact Zones.

SMS – Sediment Management Standards – Standards that apply to all Washington State surface sediment to reduce and ultimately eliminate adverse effects on biological resources and human health from surface sediment contamination (WAC 173-204).
http://www.ecy.wa.gov/programs/tcp/smu/sed_standards.htm

SRZ - Sediment Recovery Zone – A sediment recovery zone may be authorized for cleanup sites where selected actions leave in place sediment that exceed the SQS. The authorization is for a specific amount of time and may include operational terms and conditions such as monitoring and closure (WAC 173-204-590).

SQS – Sediment Quality Standards – numeric and narrative criteria for chemical and biological effects tests that correspond to sediment quality that will result in no adverse affects to biological resources or significant risk to human health.

MONITORING REQUIREMENTS

Ecology requires monitoring, recording, and reporting (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and that the discharge complies with the permit's effluent limits.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

A. Lab Accreditation

Ecology requires that all monitoring data (with the exception of certain parameters) must be prepared by a laboratory registered or accredited under the provisions of chapter 173-50 WAC, *Accreditation of Environmental Laboratories*.

V. OTHER PERMIT CONDITIONS

A. Reporting and Recordkeeping

Ecology based permit condition S3. on our authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

B. Spill Plan

This facility stores a quantity of chemicals on-site that have the potential to cause water pollution if accidentally released. Ecology can require a facility to develop best management plans to prevent this accidental release [section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080].

The proposed permit requires this facility to develop and implement a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs.

C. General Conditions

Ecology bases the standardized General Conditions on state and federal law and regulations. They are included in all individual industrial NPDES permits issued by Ecology.

VI. PERMIT ISSUANCE PROCEDURES

A. Permit Modifications

Ecology may modify this permit to impose numerical limits, if necessary to comply with water quality standards for surface waters, with sediment quality standards, or with water quality standards for ground waters, after obtaining new information from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

Ecology may also modify this permit to comply with new or amended state or federal regulations.

B. Proposed Permit Issuance

This proposed permit includes all statutory requirements for Ecology to authorize a wastewater discharge. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the State of Washington. Ecology proposes to issue this permit for a term of five years.

VII. REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

1994. Permit Writer's Manual. Publication Number 92-109

Washington State Department of Ecology.

Laws and Regulations(<http://www.ecy.wa.gov/laws-rules/index.html>)

Permit and Wastewater Related Information
(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

Ecology proposes to issue a permit to JT Marine, Inc. The permit describes operating conditions and wastewater discharge limits. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology placed a Public Notice of Application on June 16, 2008, and June 23, 2008, in the *Columbian* to inform the public about the submitted application and to invite comment on the issuance of this permit.

Ecology will place a Public Notice on July 11, 2008, in the *Columbian* to inform the public and to invite comment on the proposed issuance of this National Pollutant Discharge Elimination System permit as drafted.

Ecology has published a document entitled **Frequently Asked Questions about Effective Public Commenting** which is available on our website at <http://www.ecy.wa.gov/biblio/0307023.html>.

You may obtain further information from Ecology by telephone, 360-407-6280, or by writing to the permit writer at the address listed below.

Industrial Unit Permit Coordinator
Department of Ecology
Southwest Regional Office
PO Box 47775
Olympia, WA 98504-7775

The primary author of this permit and fact sheet is Jacek Anuszewski, P.E.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

AKART--An acronym for "all known, available, and reasonable methods of prevention, control and treatment".

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation--The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in receiving waters after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring--Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor (DF)--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report must contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short a period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the pollutant concentration is above zero and is determined from analysis of a sample in a given matrix containing the pollutant.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7.0 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)--A calculated value five times the MDL (method detection level).

Responsible Corporate Officer--A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to receiving waters may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into receiving waters.

APPENDIX C--RESPONSE TO COMMENTS

No comments were received by Ecology.